

Carbon Sequestration and Emissions Trading: Confronting Climate Change While Creating Incentives for
Improved Land Management

Testimony of

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Over the last several years and particularly over the last several months, the debate surrounding global warming has changed. There is growing recognition on all sides that a near consensus has emerged within the scientific community that climate change is already occurring, that anthropogenic activities are a significant contributor to this climate change, and that unless action to reduce emissions begins in the very near future, it will be extremely difficult – and very expensive – to avoid dangerous interference with the world’s climate system. Many businesses recognize the threat of climate change, with leading companies like BP Amoco, Dupont, and Entergy voluntarily capping and reducing their greenhouse gas emissions in anticipation of future regulation. The question is no longer whether anthropogenic emissions of greenhouse gases are causing global warming, but what we should do about it.

My testimony today focuses on what to do about climate change and in particular the role that carbon sequestration activities can have in confronting climate change. To be effective, any comprehensive strategy addressing climate change will require a cap on greenhouse gas emissions. However, often lost from the debate is the fact that land use activities, particularly tropical deforestation, account for about one fifth of global anthropogenic greenhouse gas emissions. What we do on the land is part of the problem, and it should also be part of the solution.

Environmental Defense has long advocated “cap and trade” programs, also called emissions trading, that harness the power of market forces to meet air pollution targets in a cost-effective manner. The United States already has ample experience using cap and trade programs. In 1990, then-President George Bush proposed and later signed legislation to amend the Clean Air Act by capping sulfur dioxide emissions, the precursors to acid rain, from electric utility plants. This legislation gave utilities flexibility in how to meet this new mandate, allowing them to buy and sell sulfur dioxide emissions allowances and to save allowances for use in the future. Utilities could choose to meet their obligations by reducing pollution at their own plants or they could purchase emissions allowances from other plants who were able to more easily make steeper reductions. The program has been an overwhelming success. Utilities have reduced

acid rain emissions at a fraction of the cost of even the most optimistic forecasts. Moreover, emissions have been reduced over 20% below the levels mandated by the law.

Similarly, under a prospective greenhouse gas cap and trade program, industrial sources of greenhouse gas emissions would be subject to a cap on their emissions but would be allowed to trade emissions reductions credits in a market. This market would provide companies with a variety of options for meeting their climate change obligations; they could reduce emissions from their own plants, purchase emissions credits from other plants, or, alternatively, purchase emissions credits from farmers and/or forest landowners who sequester carbon on their lands through improved land management practices.

By pursuing a market-based approach to climate change, one that incorporates carbon sequestration activities, the United States can take meaningful steps to curb emissions of greenhouse gases cost-effectively while producing substantial ancillary environmental benefits from improved forestry and agricultural practices. Such an approach can also enable farmers and forestland owners to earn a return on their investment for growing a new crop: carbon.

For example, projects are already underway to reduce greenhouse gas emissions caused by the destruction of tropical rainforests. Approximately 35 million acres of tropical forests are lost annually -- an area larger than New York State. The attendant emissions of greenhouse gas and loss of biodiversity are enormous. Destruction of tropical rainforests has many causes, but at the root of all of them is the fact that those who liquidate those forests place higher value on them as agricultural land or sources of wood products than as forest ecosystems. A greenhouse gas emissions trading market, however, has the potential to place significant value on the atmospheric benefits of preserving tropical forests, making it potentially profitable for developing countries to conserve biodiversity.

Environmental Defense has been pleased to work with Senator Brownback on legislation designed to jumpstart projects aimed at reducing deforestation. The International Carbon Sequestration Incentive Act would provide US companies with an economic incentive to invest in projects that slow rates of deforestation in developing countries and thereby reduce emissions of greenhouse gases.

There is also significant potential for greenhouse gas emissions trading markets to promote better land management and provide an alternative source of revenue to farmers and forest landowners here at home. Through reforestation of agricultural lands, conservation tillage, more effective fertilizer application, and other actions, landowners could earn and sell greenhouse gas emissions reduction credits while improving crop productivity and water quality, protecting habitat for wildlife and reducing soil erosion.

A key to making this market work is to ensure accurate measurement of carbon stocks on participating lands and to develop a carbon accounting system that is transparent, verifiable, and ensures the atmospheric benefits of sequestration activities. In some respects measurement is the easy part. We clearly have the technical expertise to accurately measure changes in carbon stocks. We do, however, have to develop verification techniques through direct measurements, computer models, and remote sensing that allow us to monitor carbon stocks across multiple ownerships at a reasonable cost.

More challenging, though clearly doable, is to develop a carbon accounting system for carbon sequestration activities. After all, for the market to work, a carbon accounting system must ensure that a ton of carbon sequestered in the soil or in forests is equivalent to a ton of carbon emitted from a power plant or some other source.

A carbon accounting system must ensure that sequestration activities provide real, verifiable and long-lasting atmospheric benefits. For example, carbon sequestration is reversible, meaning that carbon stored in soils and plants can later be released as a result of altered land management practices or natural disturbances. While this issue is often cited as the most difficult obstacle confronting carbon sequestration

markets, it should be relatively easy to develop crediting systems that account for the potential reversibility of carbon stocks. One proposal to deal with this issue is to issue credits that expire after a fixed term. Upon expiration of the credits, the purchaser of the credits can either renew the contract with the landowner or replace the expired credits from some other source.

A carbon accounting system must also prevent leakage; that is, it must ensure that carbon sequestration activities that result in reduced yields of wood-products or agricultural goods don't simply shift greenhouse gas emitting activities to other properties. Crediting for carbon sequestration activities should also not simply reward "business-as-usual" activities. That is, a sequestration market should encourage landowners to alter their land management practices so as to produce real, additional greenhouse gas reductions for the atmosphere.

We should also ensure that crediting of land use activities doesn't lead to perverse environmental outcomes such as encouraging the conversion of natural ecosystems. Perverse incentives for ecosystem conversions can be avoided by setting carbon stock baselines that account for any land clearing activities prior to initiation of the sequestration activities.

We still have a great deal to learn as to how sequestration projects and the greenhouse gas market will function in practice. Many companies are already making investments in sequestration projects, but they are doing so in an uncertain regulatory environment where the future rules by which these projects will be judged are unclear. Thus, government can play a valuable role in creating incentives for companies, landowners, developing countries, conservation groups, agencies, and academics to work together to craft measurement and carbon accounting protocols for carbon sequestration activities.

The International Carbon Sequestration Incentive Act does exactly that by creating a collaborative and transparent process to develop guidelines to ensure that carbon measurement and accounting issues are properly addressed. Similar efforts should be developed for domestic sequestration activities on American farmland and forestland.

I would also encourage this committee to think more broadly about legislative efforts to spur a greenhouse gas emissions trading market. President Bush's reversal with respect to capping carbon dioxide emissions from power plants and his abandonment of the Kyoto Process has put the establishment of such an emissions trading market on hold. Ultimately, there can be no market without a cap on greenhouse gas emissions. Environmental Defense will continue to advocate for such a cap domestically and internationally.

In the meantime, however, in anticipation of regulation of greenhouse gas emissions, the Congress can take steps to encourage voluntary greenhouse gas emissions reductions right away. For example, Congress should consider establishing an inter-agency process to establish criteria for accrediting private, third party greenhouse gas registries. These registries could, in turn, certify greenhouse gas reductions undertaken voluntarily by companies. With respect to carbon sequestration activities, such an approach would promote the development of robust carbon accounting systems.

In conclusion, carbon sequestration projects in conjunction with a greenhouse gas cap and trade market have the potential to provide a cost-effective strategy for addressing climate change while at the same time producing significant ancillary environmental benefits.